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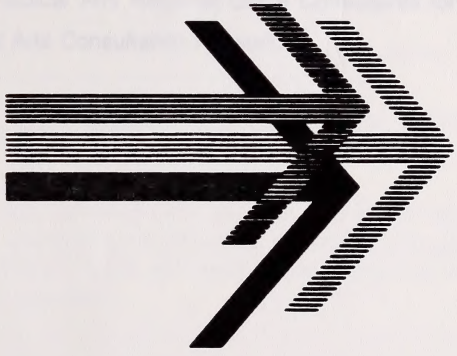
TRENDS AND ISSUES

AFFECTING PRACTICAL ARTS IN ALBERTA SECONDARY SCHOOLS

A Review of Research



Practical Arts Project
Curriculum Design Branch

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PREFACE

The purpose of this paper is to identify those trends and issues that are presently affecting the practical arts programs in Alberta secondary schools. To assist with this goal, every effort has been made to present the trends and issues in as broad a perspective as possible, reflecting the perceptions, needs and concerns of the many stakeholders concerned within this program area. Part I is a review of research. Part II is a synopsis which highlights trends, their impact, and the challenges they present to educators.

The paper is designed to be used by the various groups involved in the Practical Arts Consultation Network as they recommend directions for the practical arts programs over the next decade.

The consultation network is composed of:

Practical Arts Advisory Committee
Practical Arts Interdepartmental Liaison Group
Practical Arts Interbranch Liaison Group
Practical Arts Program Sub-Committee
Practical Arts Delivery Sub Committee

It is anticipated that, as the project proceeds, additional trends and issues will be identified and added. In particular, the whole area of issues specific to each of the subject areas will need to be addressed in a subsequent expansion of the document.

DEFINITIONS

Practical Arts	includes the following programs: business education, home economics, industrial education and vocational education.
Business Education	program areas: development of the business skills, knowledge and attitudes needed for personal and career involvement in accounting, basic business, computer processing, law, marketing, office procedures, shorthand and typewriting.
Vocational Education	program area: development of the technical skills, knowledge and attitudes needed for career involvement in an occupation.
Industrial Education	program area: development of the skills and knowledge needed for personal use.
Home Economics	program area: development of the skills, knowledge and attitudes needed for daily living, including personal and interpersonal living skills, clothing, and knowledge of textiles and foods.
Integrated Occupational Program	development by Alberta Education of a new curriculum to address the needs of junior and senior high school students experiencing learning difficulties.
Work Experience	complementary course, or part of an existing course, allowing students to build work-related skills, knowledge and attitudes in off-school environments.
Distance Learning	the process of providing a variety of educational opportunities for students at a distance from conventional education by employing communications technology which allow students to access information and assistance in the learning process.
Stakeholders	designated in the practical arts project as students, parents, teachers, school systems, business, labour, post-secondary institutions, community service agencies, and the public in general.

PART 1

TRENDS AND ISSUES IN THE PRACTICAL ARTS: A SUMMARY OF RESEARCH

Part one summarizes relevant research related to the various trends and issues that may have impact on the practical arts programs in Alberta.

This program area, very broad in scope, was a particularly challenging research assignment. The vast base of literature provided a variety of perspectives, most of which are complementary to the goal of this project -- defining the future of practical arts programs.

Major changes affecting curriculum

No curriculum has ever stood alone. No new curriculum can be designed in isolation. What society is and expects its children to learn in school becomes the curriculum. As society changes, so must the curriculum. Change has never been swifter. Familiar characteristics of the industrial age are rapidly being replaced by those of the information age: high technology, job mobility, changing lifestyles, complex international trade alliances, and fluctuating global economies. What has been traditionally known as the "practical arts" curriculum -- business education, home economics, and industrial education -- has a important, if not critical, role to play in preparing students to plan for and live in this new age.

The following discussion highlights:

1. major societal trends -- demographic, economic and technological trends that affect students, their families, their personal and community relationships, their opportunities for economic independence, and the future to which they and, in turn, their children can aspire.

2. major educational trends -- increased curricular emphasis on transferability of knowledge, skills, and attitudes and on decision-making skills; increased access to information and technology; issues related to balancing the academic and vocational curriculum; redefining the role and inter-disciplinary nature of practical arts, and providing equitable education for students regardless of ability, gender, or social circumstance.

A. SOCIETAL TRENDS

Major changes affecting social roles

A number of profound changes are occurring in society that will affect the number of students attending school, the kind of education they receive, and the kind of employment that will be available to them. Demographic changes and economic trends are influencing the rate and kind of population growth Canada is experiencing; the movement of people across the country and from rural to urban centres; changes in family structure and gender roles; and the effect of the economy on various groups of people. Technological change is determining the kind of work that is created, changed, or eliminated; the way and where people live and work; and, increasingly, the content and design of education intended to prepare students for successful lives now and in the future.

1. DEMOGRAPHIC TRENDS

a. Slow Population Growth and the Aging Population

Population changes

Canada is an aging nation. According to the Department of Health and Welfare report, Review of Demography and Its Implications for Economic and Social Policy (1989), by 2025

most of the 6.5 million baby boomers representin one quarter of the population will have reached retireme and will be collecting pensions. With a current fertility e of 1.66 children for Canadian women, the population could decline after it hits 31 million. Huge increases in immigration will be necessary to maintain a modest annual rate of population growth. Speculation is that resulting social needs and economic problems could put a severe strain on the tax system, lead to a chronic shortage of health care workers, or create major political problems.

Competition for society's resources

Along with Canada's significant decrease in birthrate, the average age of Canadians has increased. It is estimated that by 1990 only 15% of those paying taxes will have children in school. With a longer life expectancy, earlier retirement, and a healthier and more active lifestyle, older persons may be competing with the young for society's resources.

b. Changes in Family Structure and Gender Roles

Concept of "family" changing

Statistics Canada, in a report released on March 2, 1989, reported the findings of a survey conducted in 1986. While Canadians still live in families, the concept of what constitutes a family has changed. "Family" is no longer defined as a mother, father, and children, but also applies to couples with no children, single parent families, and blended families. Over four times as many single parent families are headed by females as males, but the number of lone male parents is increasing. The poorest families are those headed by single women. In 1985, about 20 percent of all children and 54 percent of children in female headed families lived in poverty (U.S. Department of Education).

Fewer children and older parents

According to Statistics Canada, there are more families without children because women are having fewer children than in earlier generations, or having children later in life. The average age for a woman having her first child is 25, compared with 21 in 1971. On the other hand, the number of births to unmarried women, ages 15 to 24, has more than double in 35 years, and more families now have two working parents, a percentage that has increased from 36.2 percent in 1975 to 55.1 percent in 1987 (U.S. Department of Education).

More mothers working full time

As noted by the Royal Commission on Education (1988:VII,5), and contrary to popular perception, of all the mothers in the labour force with children under the age of three, 69 percent are employed full time (Townsend, 1986). Further, it is highly significant that the most rapid growth in the labour force has taken place among the mothers of young children, since these are the children for whom the developmental consequences are greatest (Ruopp and Travers, 1982:77). It can be expected that students gradu-

ating from school will experience similar patterns of family structure and employment.

Increase in divorces and women working outside the home

The number of single parent families is increasing as divorce rates increase. There were more than double the number of divorces in 1986 than fifteen years earlier. Many divorced, separated, or widowed women are moving into the labour market. While, between 1950 and 1986, the percentage of 16- to 24-year-old men in the labour force changed only slightly (73.8 to 70 percent), the percentage of young women increased dramatically from 38.5 percent to 64.3 percent (U.S. Department of Education). Internationally, some 56 percent of working-age women in seven major industrialized countries now work outside the home (Royal Commission on Economic Union, 1985:149).

c. Increasing Economic Disparity

Economic disparity increasing

In the last decade, 30 percent of Alberta family heads had less than a Grade 8 education and 5 percent had less than Grade 5. Generally, levels of education have improved over the years but many Alberta parents lack the skills or educational qualifications necessary to obtain higher paying jobs. According to the Alberta Committee on Children and Youth (1982), children of parents with little education are not only more likely to suffer financial hardship during their growing years, they are also less likely to have access to post-secondary education or training. As the income disparity among Alberta households increases, schools are challenged to ensure that all students have equitable opportunities to prepare them for careers that are economically viable.

Need for employment mobility increasing

Employment patterns are changing rapidly. Lifelong employment with one company in one location is no longer likely. Workers can expect to hold five or six different jobs during their employment years. As the economy is affected by international events, the nature and kind of employment opportunities will change across Canada. The low wage earner is most affected by the need to follow the job market.

Students influenced by family

Because family life, occupations, and citizenship are intertwined, these changes will affect students in a number of ways. Students' own family structure is an important influence in developing perceptions of self-esteem, career aspirations, and employment opportunities. For example, Krahn et al (1985), in a study of Edmonton youth and their transition from school to work, found that high school drop-outs had frequent bouts of unemployment, low paying and low status jobs, low job security, and few intrinsic rewards. These drop-outs were more likely than university graduates to come from families with unemployed members.The study

also found that young women, whether high school graduates, drop-outs or university graduates, were more likely to work in traditionally "female" jobs. However, the higher the education level the less pronounced were the gender differences.

Selected groups affected by economic disparity

Economic disparity also affects other groups of people. As Felledort (1985) reports, by the year 2000, many more women, more older persons, and more individuals with different language backgrounds and cultures will be in the work force. Traditionally, these groups are overly represented in low paying jobs, work only part-time, and receive fewer benefits.

Opportunities could increase for persons with handicaps

Modern medicine and creative technology will enable more disabled workers to be employed. Business and industry are challenging schools and rehabilitation centres to produce qualified candidates for the jobs that await them. For example, Felledort notes that, with one half of the jobs in the service sector related to information collection, management and dissemination, there is a great potential for both the above average as well as the below average hearing impaired child to become economically independent.

d. Migration to Urban Areas

Rural young people moving to urban centres

Between 1981 and 1986, Statistics Canada reports the rural population of Alberta, which includes people living on farms and in villages of less than 1,000 persons, dropped from 510,179 to 488,065 people. In 1988, a provincial report predicted a net decrease of almost 100,000 persons in rural Alberta, from 1981 to 2001. By then, only 14 percent of Albertans will live in a rural environment, compared with about 20 percent in 1986. Almost half the farms are run by persons over age 50. Younger people look elsewhere for work. This trend of rural depopulation, combined with reduced farm income resulting from low commodity prices, batters some communities into stagnation and decline (Mayer, 1989:D1).

Limited educational opportunity for rural students

Continual migration of young people from rural areas to urban centres is also increasing the gap between the educational opportunities offered to students in rural areas and those in urban centres. Until distance education becomes more widespread, the range of courses available to rural students will be narrow. Even with distance education technology, rural students will have limited access to business, community, and industrial work experiences .

Immigrants concentrating in urban areas

Another group attracted to urban centres are immigrants who have made up the largest share of the increase in the population and work force since the first World War. It is

projected that women, visible minorities, and immigrants will make up more than 5/6 of the net additions to the work force, compared to about 1/2 now (Johnson and Packer, 1987). The vast majority of those in this work force will be concentrated in the cities, increasing the demand for services and goods. Most are likely to find employment in low-paying, low-skill occupations.

2. ECONOMIC TRENDS

Alberta economic influenced by many factors

The future of our youth is closely tied to the economic opportunities available to them. Because Alberta's economy is responsive to outside influences such as oil prices and grain sales, it is difficult to predict future employment opportunities accurately. However, the Government of Alberta White Paper (1984) indicates that, for the immediate future, heavy fossil fuels and associated chemicals, agriculture, forestry and diversified manufacturing using new technologies will continue to be important to Alberta's future. Long-term economic wealth for Alberta requires economic diversification, improved access to a skilled work force, and the expansion of international trade. A shift in employment opportunities is inevitable.

a. Employment Opportunities

Employment futures in Alberta

Job Futures: An Occupational Outlook to 1995 (1988) is based on a 1984 survey conducted by Statistics Canada and is intended as one source of career information. The handbook for students identifies the geographic distribution of occupations in each province. In Alberta, based on 1981 statistics, the major jobs include managers in construction operations, purchasing, and farming; engineering and environmental geologists; chemical, civil and petroleum engineers; livestock and crop farmers and veterinarians; structural erectors, rotary well-drillers, and wire communication equipment installers and repairers; surveyors, excavators and graders; construction electricians and repairers; carpenters, concrete finishers and plasterers; insulation installers and glaziers; and real estate sales persons. Whether or not similar occupations will be in high demand in the future will depend on provincial, national and international circumstances and their effect on Alberta.

Changes in employment opportunities

Reflecting a more recent and broader continental perspective, Johnson and Packer (1987:97) predict that

> *. . . not only will completely new occupation clusters evolve in the next decade, but the existing occupational mix of each industry will also change. Job prospects for professional, technical, managerial, sales, and service jobs*

will far outstrip opportunities in other fields. [The number of] lawyers, scientists, and health professionals will grow two or three times as fast. On the other hand, jobs such as machine tenders, assemblers, miners, and farmers actually will decline.

Rapid increase in service related occupations

The greatest employment opportunities are in the service-related occupations. Crone (1989:1-2), Director of Forecasting and Policy Development for the City of Edmonton Planning and Development, reports that in Edmonton, between 1981 and 1987, essentially all the jobs created were in community, business and personal services. Major losses occurred in manufacturing and construction. He identifies three consequences of this shift:

Smaller workplaces, more part-time employment

- job creation in smaller workplaces -- service firms, which created 55% of net new jobs between 1974 and 1982, tend to occupy less space and are attracted to suburban areas to be closer to clients

- rise in part-time work -- service firms need flexibility in staffing because of long operating hours and a need to keep labour costs down

- rise of the experience industry -- customers are demanding richer, dynamic experiences such as entertainment, recreation, travel or socialization.

An example of significant growth in one service area

A single example of the growth of job opportunities is the fast-food and restaurant industry, major employers of young people on a part-time basis. According to the Canadian Restaurant & Food Services Association, the industry will need 150,000 workers, including 65,000 cooks, by 1995. Few experts believe all of those jobs can be filled by native-born Canadians. Immigration is part of the answer.

Increased "Middle-age" needs creating employment opportunities

Crone (1989:4-5) also notes that the period between 1987 and 2000 will see "the rise of the middle-aged" and that this trend will affect society and opportunities for employment by the younger adults in number of ways:

- economic turbulence -- adjustments such as job changes, relocation, migration, and retraining may create difficulties for the older workers

- new market opportunities such as financial planning, diverse housing needs, and leisure options, as the population in peak earning years surges and their need for goods and services grows, and

- small business creation may or may not occur as the middle-aged face conflicts between family needs and vested pensions and the high risk associated with entrepreneurship.

b. Job Security

Youth unemployment high

The current unemployment rate of 17.2% for those 15 to 24 years of age is significantly higher than overall unemployment of 10.8% as of January 1987. Youth unemployment tends to be highest among the least educated, particularly among school drop-outs. For example, in 1982, the unemployment rate among 15- to 24-year-olds stood at 18.8 percent, but at 32 percent among those with less than eight years of education and at 10 percent among those with university education (Royal Commission on Economic Union, 1985:599). Rutter (1988), whose research is USA-based, states that the typical drop-out does not fit the "urban, poor, non-white, low ability" stereotype. Drop-outs do fall into these categories, but well over 60 percent are white students, from middle- and upper-class backgrounds, whose mean reading scores are well above average.

More work-related activities needed in school

Hamilton (1987) attributes the marginal attachment of youth to employment to constraints on opportunity rather than irresponsibility. Preparing youth to be skilled workers requires extensive employment participation and heavy investment. He advocates that a more appropriate function of secondary education might be to use work-related activities as a means of teaching academic subjects.

Small market for products in Canada

Another factor of job security is the degree of consumer activity. The Retail Council of Canada emphasizes that its main concern is not the lack of labourers but the dearth of consumers. The population's falling growth rate means a smaller market for products. Although Canada's population grew by 4 percent between 1981 and 1986, in the same period the number of adults aged 15-24 dropped from 19 to 16.5 per cent of the total population.

Major structural changes affecting employment

Major structural changes will also have impact on job security. These changes are being brought about by the shifts and expansion of world trade; new technological breakthroughs; the technological diffusion in newly industrialized countries with modern production and low wage structures, the dramatic reduction of agricultural jobs; and the concentration of employment in fairly limited geographic confines (Royal Commission on Economic Union, 1985:162-163).

c. Alternatives to No or Limited Full Time Employment

Community service promoted

Given significant demographic and economic changes, and the projected impact of technology, full time employment for everyone may no longer be possible. Although the Royal Commission on Economic Union (1985:83-84) does not see this situation as a problem in Canada in the foreseeable future, Boyer (1984:529) of the Carnegie

Commission recommended that "All high school students be given credit for performing community service." This aspect of learning is needed if we are ever to "break up the present industrial age boxes of school, work, and retirement" (Burton, 1987:5).

Education for responsible citizenship

Practical arts provides students with opportunities to explore and develop lifelong skills that they could use to improve the quality of their community, whether or not they are fully employed. One of the guiding principles of the review of secondary education in Alberta is that secondary schools must prepare students for responsible citizenship in a society that is changing constantly (1985:8). One of the goals of schooling is to "develop constructive relationships with others...as one aspect of moral and ethical behaviour (*Secondary Education in Alberta*, 1985:13). While changes in the social system may be required to support those who as a matter of course are no longer fully employed during their lifetimes, an equally important issue is calling on their talents for the betterment of society. Developing attitudes of commitment to service without remuneration may become increasingly vital.

d. Opportunities for Entrepreneurship

Entrepreneurship an important alternative

One alternative to traditional employment in business or industry is entrepreneurship. In 1985, small and medium sized businesses constituted 44 percent of Alberta's work force and contributed 48 percent to the gross national product (Millar, 1986). The highest net growth in employment over the last five years has occurred in small business. Employment statistics show that 17 of the 40 occupations expected to account for one half of the new jobs created by 1995, will be in the business area. These jobs will account for 22 percent of the total expected job growth (Holmes, 1987). Seaborg (1984) reports that small companies, typically with less that ten employees, have been most successful in creating jobs and retaining workers, largely due to active employee participation in decision making.

Practical arts can provide basis for entrepreneurship

The high correlation between entrepreneurship, creativity and innovation, and applied skills suggests that the practical arts curriculum might well include theoretical and practical aspects of owning and managing one's own business as a viable career exploration. The National Entrepreneurship Education Consortium (1988) provides an excellent overview of economic development, cooperative planning, shared resources and services, and youth employment in this areas.

3. TECHNOLOGICAL TRENDS

Canada in transition to information society

The Economic Council of Canada (1987) notes that Canada is in a "catch up" position compared to other countries in terms of technological utilization. This delays growth in productivity, competitiveness, incomes, and employment. Although Canada is viewed as an information society and a member of a global information economy, it has not yet made the full transition into that environment (Cordell, 1987).

Impact of technology on human experience

The Royal Commission on Economic Union and Development Prospects for Canada (1985:117-126) identifies technologies most likely to have a significant impact on human experience. For example, the power of the microchip has substituted for and improved upon human mental and physical effort, and brought about profound changes in human existence at an exponential rate of change.

New frontiers in science

With astrophysics and space research, humanity's perception of its place will change as the essence of the universe is further explored. Biotechnology will change our resource industries and all industrial processes, health care, environmental control, and our understanding of physical and mental behaviour. Revolutionary discoveries in physics are providing substitutes for, or adding new properties to metal, glass, and wood. Electro-optics applications range from aerial surveillance and electronic mapping of the continent (Boyd, 1989:D1) to metals' discovery and assay, welding and surgery, high-definition television, and printing and fibre-optics communication. In ocean sciences, the development of ocean-bed hydrocarbons and mining of sea-bed nodules opens new frontiers.

Multiple impacts on society

The Royal Commission stresses that these rapid changes in science and technology will have social, political and economic implications, nationally and internationally, in virtually every aspect of our society (p.25).

Traditional occupations changing

The impact of technology on traditional occupations has been extensive. Many jobs have been eliminated. The majority of other jobs have been substantially changed. Employer and employee requests for retraining or upgrading are increasing. Projections by leading economists and futurists indicate that high-paying jobs will be highly specialized, few in number, and that training will be scarce. Devore (1984) stresses that careers dealing with technology are more intellectual, not less; more theoretical, not less; and more conceptual, not less.

Potential job displacement

On the other hand, Cetron (1984), in an analysis of jobs of the future--1983 to 1992--reports that the vast majority of jobs require no post-secondary education, an observation that he claims lends credence to those suggesting that the necessity for high tech education is a myth. Hodgkinson (1986: page 10) agrees:

If two percent of the new jobs are high tech, what will happen to the 500,000 cashier jobs per year! We know from various research sources that most students will not need high level skills in order to get a job because, as a janitor or a truck driver, these won't be necessary skills because the ability to make decisions, think logically or communicate clearly are valuable. Moreover, jobs that are predictable, such as "draftpersons", are also automatable.

Transition time needed

However, the Royal Commission (1985:165) concludes that, despite some anxiety, technological changes which temporarily slow employment also increase living standards and overall demand within the labour force. Flexibility and adaptability in the economic system will ensure ongoing employment opportunities.

Economic diversity and geographic concentration

Johnston and Packer (1987), in Work Place 2000, identify five technologies that will have the greatest impact on society: information storage and processing, communications, advanced materials, biotechnology, and superconductivity. Crone (1989:14) notes that these technologies have two direct implications for Alberta:

- The declining demand for natural resources and associated shrinking revenues should motivate economic diversification.

- Technologies which have overcome barriers of time and distance are becoming centralized in a few selected metropolitan centres.

New jobs and new specialization

As technology changes and innovations multiply, education and skill training must change. For example, twenty years ago, the newest jobs were in computer programming. Today, career opportunities within the computer industry lie more with technicians and operators. Advancements in a single field such as telecommunications (satellites, undersea cables, digital switching equipment, and fiberoptics) have created a demand for those capable of building, improving, and repairing automated systems.

Lifestyles changing with technology

As a consequence of present and future technology, lifestyles are changing too. Electronic mail, cellular phones, and teleconferencing have created a whole category of work that is distance-insensitive, that can be done at home or across an ocean. Microelectronic implants are monitoring the function of vital organs and resolving some speech and hearing impairments. Soon, instant voice, data, and video communication services are likely to be centralized in strategic regions across the country, and readily accessed from homes. Information has turned into a market area and has begun to

create hundreds of new jobs, "engendering bursts of innovation not unlike the era of automobile and electricity at the beginning of the century" (Cordell, 1987).

New training methods explored

Radwanski (1987) stresses that if students are to cope with the rapidly changing society they must become independent thinkers capable of rapid and astute decisions. In responding to the need to strengthen individual's ability to adapt to rapid change, the Ontario Ministry of Skill Development (1987) allocated funds to develop innovative training approaches, training in new trades, measures to attract more women, support for apprentices' tools, and employment of more apprentices in government. It is anticipated that the number of young people who would benefit annually from Ontario's apprenticeship system will increase by 20,000 within five years.

Research to determine and assist technological change

But issues related to coping with social, economic, and technological changes are more than education alone can solve. To this end, the 1988 report of the Council of Science and Technology Ministers recommended an initiative to negotiate cooperation between provincial, territorial, and federal governments to study the social and cultural impact of technological change and to assist adaptation to technological change. The report emphasized that there is a need for improved public awareness and understanding of science and technology so that they are not equated with job loss but with labour market adjustments, changing skill requirements, and occupational health and safety concerns. There is also a need for improved research capabilities to assess current, and predict future, impacts of technological change. However, as McIlroy (1989:D1) reports, the National Sciences and Engineering Research Council which supports applied research has a limited budget and is unable to fund projects as extensively as it might wish. The Canadian Social Sciences and Humanities Research Council, among others, faces similar challenges.

Technology providing access to new kinds of knowledge

The impact of technology on education is already significant. Its potential can only be hypothesized.

> *Today's technology, if fully applied, could revolutionize education as dramatically as the automatic loom changed the textile industry.*
>
> *Students could have access to a hitherto unknown variety of knowledges from the best teachers who would be guides to the technology and the information sources rather than custodians of the knowledge. With individualized courses, self-paced instruction, and built-in testing, scoring and evaluation of progress, the modern classroom could provide the equivalent of a personal tutor for each student.*
>
> (Johnson and Packer, 1987:67-68)

Further discussion on the impact of technology on education is presented in Educational Trends.

Projections speculative

In summary, the socio-economic technological trends affecting Canada's future and shaping the lives of young and old alike are formidable. Projections are based on the known but, as history has repeatedly shown, the impact of the unknown is not as easily nor as accurately predicted.

Canada's advantages

However, as the Royal Commission for Economic Union (1985) points out, Canada is distinguished not only by our high standard of living but also by three distinct features:

- a small population related to land mass
- a continuous history of peace, and
- an endowment of natural resources.

The Commission (1985:11) believes that we are a fortunate, mature people and that:

> *Our national self-image...linked to former definitions and incorporating historic identities...(is) changing in response to the multiple domestic and international factors-- linguistic, ethnic, racial, economic, religious, sexual, and other --.*

Role of education in preparing young people for the future

Canada is also distinguished by a enviable standard of education and a sensitivity to the need for change. As students join the labour force or enter post-secondary institutions, they will find career patterns opened or closed to them because of the changing composition and demands of society. The school's role, then, is twofold: to assist students in coping with role and career changes and to eliminate barriers that limit further study or career opportunities. In particular, the curriculum designed for the practical arts can play an important role in helping students become participants in the constructive social and economic adaptations needed as the information age advances.

B. EDUCATIONAL TRENDS

One of the contemporary educational challenges is determining the role and future of practical arts within the total educational process. After decades of relative quiet, a wide variety of stakeholders are contributing to the research and literature on this issue. The following discussion centers on five major areas

Extensive analysis of practical arts and vocational education

- current research related to education, vocational education, and the practical arts

- current issues and trends, including new curricular emphasis, international trends, and changes in course enrolments

- students and the practical arts, including career aspirations and equity of opportunity

- renewing the practical arts curriculum, including philosophical perspectives, need for employability skills, skill transferability, and name and content changes in practical arts courses, and

- alternatives in implementation, including the need for change, early-grade orientation to practical arts, effective instructional strategies, alternatives in, around, and beyond school, and changing to instructional technology.

1. OVERVIEW OF CURRENT RESEARCH

Extensive research and development in five major areas

Changes in the curriculum design of the practical arts are being influenced by a variety of factors:

- analysis of the need for and the direction general educational reform should take: (*Secondary Education in Alberta*, 1985; Royal Commission on Education in British Columbia, 1988; Saskatchewan Education: Core Curriculum Policy Advisory Committee, 1985; Boyer 1987; Resnick 1987; etc.)

- recommendations for specific reforms in vocational education (Berryman, 1987; Council of Ministers of Education, Canada, 1987; Edmonton Public Schools, 1988; National Commission on Secondary Vocational Education, 1987; Silberman, 1987, 1988; Twining, 1987; etc.)

- recommendations for specific changes in the practical arts (Bensen, 1988; Bujea, 1988; Calgary Board of Education, 1989; Day and Pallas, 1987; Deacon, 1987; Huber, 1988; McRae, 1988; Mullis, 1988; National Entrepreneurship Education Consortium, 1988; South Carolina State Department of Education, 1984; etc.)

- development, piloting and implementation of new curriculum and learning resources (Alberta Education: Integrated Occupational Program, 1986 and ongoing; manufacturing technology - Miller & Milton et al, 1987; technology education - Cuetera, 1988; an annotated bibliography of entrepreneurship - Muzzo, 1985; office specialist and introduction to technology - Gouvernement du Quebec: Ministere de l'Education, 1987; etc.)

- analysis of school related features (student enrolment, Alberta Education, 1988; vocational course viability and impact of graduation requirements, Calgary Board of Education, 1988 Survey; students' aspiration for study and employment -- Kass and Kieren, 1987; drop-out reduction -- Weber, 1986; etc.)

Toward a revitalized curriculum

This concentration of attention on vocational education and on the practical arts indicates both a concern about the adequacy of current curriculum in these areas and an optimism that changes can be made to reflect more accurately the changes in society, our increased understanding of the learning process, and the requirements of the marketplace. In particular, the following tasks have been identified by many authors as important in bringing a new vitality to the vocationally oriented curriculum:

- enhancing the image of vocational education and practical arts courses
- updating old courses that have proven their value and developing new courses to reflect changes in society and in the world of work
- incorporating technological literacy in all practical arts courses
- articulating the interconnectedness of common learnings and the specific knowledge, skills, and attitudes in academic and practical arts courses, and
- balancing both the theoretical and the practical aspects of practical arts courses as these are presented in school and work settings.

2. CURRENT BELIEFS AND TRENDS

a. Continuing Value of Practical Arts Courses

Shift in curricular emphasis recommended to eliminate the boundaries between academic and vocational courses

While various authors, professional councils, and teachers' associations have questioned the continuation of the present form and content of vocational education and practical arts courses, no-one has advocated the total removal of these courses from the secondary curriculum. A number of authors, like Burton (1987:4) and Glines (1986:9), encourage curriculum planners and students themselves to shift the emphasis from the world of work to a world of learning.

Oakes (1986:70) and Harrington (1988), among others, also reject the arbitrary division of vocational and academic education which reinforces the dichotomy between manual

and mental activity in school. The arguments are focused on what the curriculum should be, not whether it should be removed from the range of experiences offered to students. Silberman (1986) is among the leaders in planning for and initiating significant changes within this field.

Importance of work for economic and psychological well-being

Dryden (1985:59) points out that Canada offers two important lessons to students:

> *-- the importance of work; the importance of a sense of opportunity. Both are central to our practical and psychological well-being. Both are basic underpinning of our society. With economic and social change, both are under pressure and likely will continue to be.*

To compete in the post-industrial age at a national and international level, Shuttleworth (1987:16) states "we must enable all our people to strengthen their innovation and entrepreneurial skills to access world markets and decrease economic dependencies."

Contribution of practical arts to student learning

According to Copa (1985), vocational and technical experiences help students in five ways:

- provide an egalitarian atmosphere
- teach interdependency through cooperative teamwork
- enrich students' educational experience through activities perceived as relevant to their lives
- allow teachers to get to know their students well, and
- develop self-esteem through immediate feedback, new challenges, and ongoing success.

Applied learning concept a strength

In making an important distinction about the role of practical arts and vocational education in preparing students for the future, Kolde (1986:5) stresses the need for a major shift in thinking: that vocational education for tomorrow must be an educational delivery system, not a subject matter content area, and that the applied learning concept -- actual job task activities and experience -- must never change. "It is our strength."

b. Trends Toward New Curricular Emphasis

Multiple approaches to learning

Schools are being challenged as never before to prepare students to be wiser consumers of mass information and products.

While students will need to be skilled in traditionally linear ways of information gathering through reading and writing, increasingly non-linear modes such as combining auditory and visual realms, including multimedia and interaction technologies, will be required skills. Buzan (1983) notes that students with non-English backgrounds, including Canadian Native students, have a strong preference for learning in different modalities. Practical arts courses have a valuable contribution to make in developing this knowledge and skill base.

Multiple goals including employability and citizenship

However, Hughes (1987:24) cautions that a strictly vocational education in the form of preparation for particular vocations is inadequate even for its own limited purposes. "Vocational patterns and requirements are changing too quickly and too unpredictably for it to be sensible for schools to prepare people for specific jobs." Secondly, while work is one of the most important roles in our society, it is not the only important role. "It is equally important that schools prepare their students as citizens and as individuals."

Broad occupational skills emphasized

Lotto (1986) notes that specific occupational skills training will be shifted increasingly to post-secondary education agencies, government training programs, private occupational schools, and community agencies. Occupational skills taught in secondary schools will be broad and generic and include applications of science and mathematical concepts. This trend is endorsed by John Polanyi (1986), Canadian Nobel Prize co-winner in basic chemistry, in a letter to the editor of the Financial Times (1989). Lotto points out, however, that some specific skill training will always be needed for roughly 20 percent of students who complete high school and go directly to work, and for the roughly 35 percent of all high school students who simply do not graduate.

Linking student learning to the outside world

Dryden (1985:38), in comparing mass education to mass production economy, points out that:

> *the knowledge-based economy of the future will demand different skills and different ways of learning. In schools, students need to learn and do in ways which practise the attitudes and behaviours considered necessary by the outside world. They will need more experience and practice in working together, developing their interpersonal and group skills, and in exercising individual responsibility and accepting risk.*

Student-centred learning

Triggs (1989:47), summarizing the findings of 398 postal questionnaires about pre-vocational courses for 14- to 18-year-olds in Great Britain, found that the dominant motif centered on students negotiating their own curriculum content and learning processes; that profiling is a useful focus around which student-centred learning should be organized; and that clear objectives rather than general aims are an especially attractive feature of pre-vocational education.

c. International Trends in Practical Arts

Technical - vocational education initiatives

Bridgewood (1987) analyzes current technical-vocational education initiatives (TVEI) in six countries. Conceived in Wales in 1983, this approach is interpreted both broadly to include preparation in general for the world of work, and narrowly as training in specific vocational areas. Some of the distinctive initiatives include: all 14- to 15-year-olds in Sweden take compulsives such as home economics, child care, textiles, or woodwork. A Working Life Orientation course is compulsory in all upper secondary school programs. Other courses are based on a short modular format and allow for integration of the unemployed. In Denmark, students can opt to study at specialized vocational schools at age 15 to 16, where 60 percent of the timetable is devoted to practical skills, 30 percent to core, and 10 percent to options.

Combining school and apprenticeship

In France, one third of 14- to 15-year-olds enter the apprenticeship lycees. In their final year, students keep working hours of up to eight hours per day. Accreditation in France is national and is based on consistent standards across occupational fields that apply to students from 14 to 18 years. In Germany, the modularized curriculum is not used. Emphasis is on methods that develop personal qualities coupled with positive work attitudes, especially "attitudinal cooperation" and quality workmanship. Accreditation is available in 434 training occupations and is laid down by federal ministries with final examinations co-jointly handled by the Chamber of Commerce and by Crafts and Trades. Japan least resembles TVEI. Vocational training is postponed till age 18. There is no integration of vocational education and general education, and no females are included in vocational training programs. All vocational training is paid by employers except for annual student fees. Details on these and other initiatives can be found in Twining (1988).

d. Trends in Practical Arts Courses Currently Offered

Alberta trends in practical arts

Alberta Education, the Calgary Board of Education and the Edmonton Public School Board, independently, have analyzed student enrolment in vocational education and practical arts courses and found similar patterns. Since the mid-1980's, there has been a gradual reduction in student enrolment in most of these courses. Two main factors appear to contribute to this decline: the increased numbers of students who elect to study a second language and/or computer literacy/programming as complementary courses in junior and senior high school, and the increased high school graduation and post-secondary entrance requirements in core courses.

Similar trends elsewhere

In Manitoba, less than one quarter of the high schools offer vocational educational program patterns. Approximately 55% of all Manitoba schools offer a business education program pattern. The program is available in 86% of Winnipeg's schools, in 69% of northern schools, and in 42% rural schools (Manitoba Education, 1987).

Further details about changes occurring in the format and content of practical arts courses are described later.

3. STUDENTS AND THE PRACTICAL ARTS

a. Career Aspirations of Secondary Students

Similar male and female occupational and educational aspirations

In a study of the work attitudes of rural and urban, male and female Grade 12 students, Laurikainen (1986) found that, in occupational and educational aspirations, males and females responded very similarly. Sixty percent of the males and 62 percent of the females planned to acquire post-secondary education. An important finding is that 75 percent of vocational students received career guidance as opposed to only 4 to 10 percent of the academic, business, and general groups of students who did. Seventy-seven percent of students in the technical program felt ready to enter the world of work compared to 48 percent in the academic, 52 percent in business, and 60 percent in general programs.

University, the "big teen dream"

Bibby and Posterski (1985:169-173), reporting on a 1982 Canadian national survey of teenagers, found that, although less than 20 percent of the parents of the teenagers had university degrees, the big teen dream is to go to university. Slightly more young women than young men plan to go to university. Males are somewhat more apt to see their post-high school lives involving a job or a technical or business school training. Approximately one third of the young people who hope to continue their education past high school actually realize their intentions.

Major teen dilemma is future employment

King et al (1988:19) reports that, as young people move from Grade 7 to Grade 11, their goals become clearer and their educational aspirations change. The percentage of students choosing college graduation as an appropriate goal increases from 12 percent in Grade 7 to 29 percent in Grade 11, while the number of those aspiring to university graduation drops from 57 percent at Grade 7 to 46 percent in Grade 11. As the number of young people intending to go to university declines, the number planning to try to get a job increases. Bibby and Posterski (1985:165) report that the teens' major dilemma concerns employment. Many recognize job scarcity as a potential problem, but 70 per cent are optimistic about their personal employment future after completing their education. Some 85 percent think science will become even more influential in the future -- not surprising for those born into the high-tech age (p.170).

Career aspirations shaped by personal and environmental factors

In outlining developmental theory of occupational aspirations, Gottfredson (1981) raises three provocative points that could affect curriculum design and the role of the career counsellors:

- Although the process is the same for all youngsters, where they draw their boundaries [for careers] will differ according to their judgments of their own abilities and motivations, the definition of success in their community, and the expectations other people have for "someone like them", as well as other personal and environmental factors. Hence, even the idealistic preferences of youngsters differ by sex, social class, capability, interests, and values (p. 558).

- Any mismatch between the abilities and interests of a working population and the jobs available means that some people will not be able to work at the jobs they originally preferred and for which they may be suitable (p. 571).

Most students have shaped career aspirations by early teens

- Vocational counsellors might want to rethink their role. Most youngsters circumscribe their aspirations according to sex type and prestige by age 13, (that is, before most of them ever see a counsellor), and counsellors often take their earlier development for granted. Does this mean that counsellors are only tinkering with the final details of a larger social process that shapes people's aspirations, to recreate the old social orders? On the other hand, is it wise -- or ethical -- for counselors to reshape youngsters' aspirations and views of themselves? And if they choose to do so, is such reshaping even possible without massive intervention (p.577)?

Mayall and Maze (1985) have developed a new system of occupational analysis which matches a client's self-assessment of skills with possible careers. This analysis may be useful in assisting secondary students to explore courses that match their interests and learning preferences.

Self-assessment for possible career choices

b. Equity of Opportunity

All students, whether male or female, from stable or unstable family, social, and economic backgrounds, who are of average ability, gifted, or facing learning challenges, have equal entitlement to an education that prepares them for the future. As Dryden (1985:45) points out:

Equal entitlement to a appropriate education

> *The basic education approach necessarily applies to all students, for all students are moving into the same future whether their jobs have the same requirements or not.*
>
> *But some students will require more time and more money, more patience, more novel and different ways of teaching in order to learn the same lessons, and to be prepared the same way. They are the would-be drop-outs. It is the drop-out, with his or her feet, who demonstrates most eloquently what we are not now doing, and what we will need to do . . .*

Same future; different needs

The U.S. Special Senate Committee on Youth (1986) is equally concerned that:

Perceived "irrelevant" curriculum leads to dropping-out of school, a form of inequity

> *The effect of many curricula is to polarize students. Academic courses serve the "achievers" and the 33 per cent most likely to continue their schooling in post-secondary institutions. Specific skills training meets the needs of those who have already decided that they wish to pursue a certain vocation. For those who are somewhere between the two, the scenario is not as promising. They see little relevance in the courses they are taking as they lead neither to a guaranteed job nor to higher education. These students become bored, discouraged, and disillusioned and therefore leave school. This is the group of young people who need an additional effort on our part, both before they drop out and once they have done so.*

Importance of employability skills for "at risk" students or those going direct to work after high school

The *Secondary Education in Alberta* Policy Statement is clearly committed to educational excellence. It also targets students who are "at risk" or alienated from schooling. A survey by Calgary Board of Education (1986), indicates that 75 percent of all student go directly into the work force when they leave the public school system and 25 percent go on to post-secondary educational programs. Preitz (1988) reports that 27 percent of American students "leave earlier than anticipated." For the majority of students, orientation to the requirements of employment is important.

Equal status and equitable access to vocational courses needed

The Manitoba Education High School Review (1988:38), with suggestions equally applicable to practical arts, states that:

> *Vocational education (should be made) more accessible. At present, vocational courses tend to be offered on an all-or-nothing basis, largely because of funding regulations. The result is the exclusion of students who might benefit from taking a few vocational courses. In addition to limiting access to academically-oriented students, this sorting of students into separate streams has generally operated to the disadvantage of the vocational student because vocational courses and students have not been accorded the status they deserve.*

All students need work education and community outreach experiences

Noting that the majority of students receive no formal introduction to the world of work, the Manitoba review also recommended that "all high school students be encouraged to participate in some type of formal work education and...in some community outreach activity." (p.56)

Significant increase: more girls in industrial education and more boys in home economics

Of particular interest is an analysis by the Calgary Board of Education (1988) which indicates a 100 percent increase in the number of girls taking industrial education since 1979-80. Girls now comprise one third of the total enrolment. During the past ten years, approximately fifty percent of the total junior high student population in Calgary have enrolled in industrial education each year. Peterat (1988) reports a general trend toward co-education in home economics.

4. RENEWING THE PRACTICAL ARTS CURRICULUM

a. Philosophy Underlying Curriculum Change

Importance of the influence of the school

> *The school curriculum is an explicit expression of the values of a particular society. It represents those aspects of its culture which a society selects for emphasis through education. Many institutions play a role in the transmission and development of cultures, including the family, religious institutions, the media, and the arts. Only the school...has the responsibility of imparting a selected common core of culture to everyone, plus that of transmitting specific aspects of culture to various groups in society.*
>
> (Hughes, 1987:17)

What is the main purpose of the schooling?

Many authors question whether schooling should prepare students for their future employment roles in society, or whether the education of the individual should be pre-eminent (Boyer, 1985; Buzzell 1987; Hirsch, 1987; Sizer, 1984; St. Clair, 1984).

Learning in school different from learning outside

Resnick, in a seminal paper presented to the 1987 American Educational Research Association, highlights another dilemma -- the "discontinuity" between learning in school and learning outside. She identifies four broad characteristics of mental activity that are significantly different:

- individual cognition in school versus shared cognition outside
- pure mentation in school versus tool manipulation outside
- symbol manipulation in school versus contextualized reasoning outside, and
- generalized learning in school versus situation-specific competencies outside.

New forms of schooling needed

To help students move from one learning context to another and to effect change within the school that more closely reflects the demands the students face once they leave school, Resnick believes that vocational and professional preparation must create closer links to job performance. New forms of schooling are necessary to prepare students to be adaptive to the various settings they may encounter over the course of their working lives (p.16).

Resnick compares a Liberian tailoring apprenticeship process, described by Lave (1977), as a graded, contextually embedded practice process, with current school-like forms of on-the-job training. In her own studies, she found that the results of typical school-type instruction, unstructured observation and practice are unsatisfactory and recommends that they be enhanced or replaced by community partnerships or off-campus education as part of each course experience.

Clarity of linkages needed

Dryden (1985) claims that the responsibility for making these linkages rests with educators and planners:

> *We stream these young people in certain directions, but we do not stream them towards something. Co-op and other work study programs, counselling, job and training programs, apprenticeship, are all useful, but they are not nearly enough. Together they represent no visible path, no direction, no goal. They are no system. They are too fragmented. Young people, teachers, employers, cannot see the connections between these programs, so they do not make the links between them that are necessary.*

Practical arts cannot be expected to solve all society's problems

Many authors (Ornstein & Hunkins, 1988; Weber, 1986) consider vocational education and courses in the practical arts are primarily drop-out prevention programs. However, as Silberman (1987) points out, vocational education cannot be held accountable for resolving all the problems affecting the nation, such as illiteracy, unemployment, economic issues, or social inequality. There is no clear cause and effect relationship. Perhaps too much has been promised by those in the profession and too much expected by business and industry

b. Increased Demand for Employability Skills

Employers prefer work-related social skills

Ascher (1988) believes that educators should not limit high school graduates' capabilities to those skills employers want from entry-level employees. She notes that, while citing desirable skills, employers do not make clear whether the skills are also necessary for more advanced positions to which students might move later. While employers look for high school diplomas, they appear to be less interested in grades or competency than in previous work experience. In general, they look for work-related social skills and basic academic skills. Except in some specialized businesses, few employers prefer workers with specialized training. Quoting Owens and Monthey (1983), Ascher notes that,

"while high school graduates are very proficient in the skills in which they are trained, they have a hard time generalizing these skills to other tasks." Transferability of skills may need to be an emphasis within the practical arts.

c. Transferability of Skills

Transferability cannot be assumed

Resnick (1987:15) warns that there is "growing evidence that very little can be transported directly from school to out-of-school use. Both the structure of knowledge used and the social conditions of its use may be more fundamentally mismatched than we previously thought" (p. 15). Perkins and Salomon (1989:19) emphasize that:

Only directed transferability successful

> *Thinking at its most effective depends on specific, context-bound skills and units of knowledge that have little application to other domains. To the extent that transfer does take place, it is highly specific and must be cued, primed, and guided; it seldom occurs spontaneously.*

Teaching for transferability

Perkins quotes Brown & Kane (1988:22) who state that useful transfer to new problems, from one context to another, does take place when the following circumstances are present:

- learners are shown how problems resemble each other
- learners' attention is directed to the underlying goal structure of comparable problems
- learners are familiar with the problem domains
- the latter are formulated by the learners themselves and, perhaps most important,
- learning should take place in a social context (e.g., reciprocal teaching) whereby justifications, principles, and explanations are socially fostered, generated, and contrasted.

Building bridges from knowing and doing in many different contexts

In reporting a 1985 Minnesota study, Copa (1985) refers to "applying the basics to and from" or building a bridge from the students knowing to the students doing as an integral part of vocational education. They note that students and educators think of this process differently: students are typically more concrete in their thinking about the application of skills; educators emphasize the importance of abstract theory or principle and the long-range value of higher order thinking. The authors stress that vocational

education (and practical arts) has a unique orientation with secondary schools. It is a special problem-focused environment that provides unique content, customized experiences, specialized questioning, and dynamic student-environment interchange (p.8).

d. Name and Content Changes for Practical Arts Courses

Choices of name convey intent and ideology

There is a general trend, not clearly articulated, that a change of names for practical arts courses would be appropriate. In keeping with the advances in technology, it is not unexpected that the term "educational technology" is a recurring suggestion, particularly for industrial arts (Cuetera, 1988). However, as Boyd (1988:118) notes, "the establishment of a popular name...is both a symptom of ideology and a means for propagating ideology." He cites the American "computer" as emphasizing calculating prudence, as does the German "rechner" (reckoner). In contrast, the French "ordinateur" has connotations of command; or "ordonnateur", inferring to arrange, order or command.

Sample course names

The Manitoba review (1988:94), for example, defines a "technology course" as a course of studies which deals with the development of technology (focusing)...on the way people individually and collectively provide themselves with material objects, as well as the implications and impact of technology on modern society and the natural environment."

The Calgary Board of Education Task Force (1989:26) recommends that complementary courses, currently referred to as "practical arts", be redesignated as "technology and life skills", on the basis that the name recognizes that an understanding of technology and an ability to use technologies to solve problems are skills for life, whatever personal or career goals are being pursued.

Alternative names for home economics

Peterat (1988) reports that home economics has become "family studies" in some areas (Newfoundland and Labrador, for example). Across Canada, at the senior high level, specific modules such as foods, clothing, family living, child care, nutrition, textiles, personal living skills, housing and design, and high tech living are being presented. In New Brunswick, a life skills course is recommended for all Grade 11 students. It consists of a series of six modules, one of which, entitled "Decision Making and Resource Management", is compulsory. Students choose two other modules from: Law and Everyday Living, Food Choices and Lifestyles, Establishing and Maintaining a Home, Career Planning and Job Search Techniques, and Entrepreneurship. In Alberta, Peterat notes, the mandatory Career and Life Management course is complementary to senior high school home economics which are becoming increasingly co-ed (p. 62).

Family living skills emphasized

In statements relating directly to ideology, Peterat concludes by stressing that the future of home economics education depends on administrators, counsellors, other educators, parents, and students viewing the "whole of home economics" and realizing that "in today's increasingly complex world there is a growing need for all students to understand family dynamics and to develop skills related to family living" (p. 63).

"Business education" retains its name

The designation "business education" has remained relatively constant despite recommendations for a change in curricular emphasis. Typically, business education includes basic skills and core competencies in the following areas: information processing, personal development, economics, consumer education, business concepts, public relations, and technology skills; text and data processing, including dictation and transcription; accounting and record keeping; business occupations; and entrepreneurship.

Business education recommended as a required course for all students

The omission of any reference to business education in the 1988 Yearbook of the Association of Supervision and Curriculum Development is criticized by LeMoyne (1988) as a serious oversight. With the vast majority of jobs being created in small businesses, and twelve times as many of these created by women than men (Canadian Federation of Independent Business, 1988), a combination of extended job skills with a knowledge of how businesses function would be beneficial. She argues that students would be better served if business education subjects were required in the secondary curriculum.

Differentiating between "job training" and "education for work"

"Work education" or "work experience" has also retained its place in the literature. The challenge comes not in changing the terminology but in determining the purpose and focus of the experience. Simon and Dippo (1987:103) make it very clear that the primary task of work education is not to meet the needs of employers nor to ensure a student's immediate economic survival. They differentiate between training for jobs and education for work. "It is vital to engage young people in the process of questioning their future identities and possibilities....Education for work helps students understand the economic, social, and cultural relations that shape their sense of what is possible, of desirable influences...(and) define an expanded range of possibilities for the future." (p. 102-103)

Different results possible from different interpretations "work experience"

Simon and Dippo (1987:104-109) present four discrete ways in which work experience can be understood. Each perspective results in different outcomes for the student.

- Experience as information and techniques acquired by participating in new and different situations, entails learning what to expect from others and what is expected by others. [It is] practical learning. . . provided by placement.

- Experience as a personal characteristic gained as a result of participating in real work...the acquisition and possession of valued personal contacts, work habits, attitudes, and skills that can be used informally, put on a resume, or reported in a job interview.

- Experience as a challenging situation which is endured or undergone...[It is] based on the assumption that a person becomes better because of it or "grown up"...a process that contains exhilarating and anxiety-producing challenges.

- Experience as the knowledge and understanding accomplished or developed in ways which make sense of a situation or set of events...Students necessarily confront ideas, terms, procedures, relations, and feelings in order to make sense of their presence in the workplace...Experience offers concepts and a language which helps students interpret work-related situations and relations.

Socio-technical literacy as an outcome of student learning in the workplace

Not surprisingly, Simon and Dippo find the fullest definition of work education is the latter form of experience. Prantzer (1985:9) describes this kind of experience as an integral part of an alternative paradigm which focuses on the development of "socio-technical literacy", a balanced concern for social and human aspects of work, as well as technological aspects, and an appreciation of their interactions.

Challenge: If a new name is needed for "practical arts", what should it be?

Because course identity and the appeal for all practical arts courses is carried by the course name, any shift in Alberta from the designation of "practical arts" must reflect the purpose and scope of the courses offered. New descriptors must be distinct and comprehensive enough to remain appropriate for some distance into the future.

5. ALTERNATIVES IN IMPLEMENTATION OF THE PRACTICAL ARTS

a. Need for Changes in Implementation

Enhanced status and recognition needed for practical arts

Dryden (1985:51) challenges educators to attract parents and students to vocational and practical courses by creating programs worthy of status and recognition:

> *We have vocational and co-op education programs, yet parents fight to keep their children in the academic education stream, and many students drop out. We have job creation and training programs, yet only a small percentage of employers provide training for their employees. There is a*

message here. Young people, parents, and employers will not commit themselves to something which, by deed if not by word, is so clearly secondary. We cannot produce first class results with a second class system, or no system at all.

Factors to consider when planning for changes in practical arts curricula

In describing Australian education since 1970, Hughes (1987:19-20) identifies the following changes as particularly important. They represent similar changes in Alberta education and reflect the circumstances under which new curricula will be shaped:

- the beginnings of real participation in decisions by teachers, parents, and students
- a growing emphasis on school-based curriculum development (and adaptation) as an aspect of school-based decision making
- an intense debate on the nature of education, including the achievement of public accountability, the satisfactory development of minimum 'basic skills' and the perceived dichotomy between 'open' and 'traditional' education
- a deeper concern, springing from the feminist movement and from other social pressures, about the education of girls, and particularly for the broadening of opportunities for girls
- the growth of unemployment, particularly youth unemployment, and the consequent concern for the school-work interface, and
- the potential impact of information technology, including computers, not only on the processes and purposes of education, but also on the structure and values of society.

b. Beginning Orientation in Earlier Grades

Early grade and ongoing orientation to cooperative production

Shuttleworth (1987:18-19) contends that it is in elementary schools that attitudes and skills of self-reliance, cooperative problem-solving, marketing and entrepreneurship, innovative practice, voluntary action, and community development should begin. He lists a number of strategies to develop these capabilities and recommends that these strategies be operative from primary through to secondary levels:

- provide an abundance of concrete, industrial materials as essential learning resources, along with workbenches and simple tools

- engage students in community service projects that stress problem solving, planning and implementation related to the needs of older adults, the disabled, and volunteer organizations

- engage students in the making, collecting, and selling of goods, and in developing classroom industries and business ventures, and

- teach the basic principles of market research, merchandising, inventory control, and securing funding and venture capital through practical experience.

Business and community support of school projects

Shuttleworth also reports that the British government, with funding provided by a national bank, embarked on a scheme to put schools in business. Every secondary and middle school in England and Wales is eligible for a small grant to be applied toward the cost of setting up a mini-enterprise to introduce youngsters to the practicalities of industrial and commercial management. Volunteerism is included as an equally productive learning experience to be explored along with opportunities within commerce and government.

Sample: National curriculum in design and technology

The interim report (Blackburne, 1988) of the Design and Technology Working Group in Great Britain describes the introduction of design and technology as part of the national curriculum. It is based on the best practices in schools and is intended for students from 5 to 16 years of age and of all abilities. Described as a "new departure", the curriculum attainment targets include:

Attainment targets shift initiative and responsibility to students

- Through exploration and investigation of a range of contexts (personal, social, environment, business, industrial), pupils identify and clearly state needs and opportunities for design and technological activities.

- Pupils explore, develop, and combine design and technological proposals, and use their judgments, based on various criteria (economic, technical, aesthetic, ergonomic, environmental, social), to choose an appropriate design for further development.

- Pupils develop their chosen design by refining and adding detail to produce a plan for making the required artifact or system by identifying tasks and sub-tasks and ways of undertaking them, and by making judgments on what is realistic, appropriate, and achievable.

- Pupils produce a critical appraisal of the processes, outcomes and effects of their own design and technological activity, as well as the outcomes and

effects of the design and technological activity of others, both historic and present-day. With respect to their own activity, they use their appraisal to propose and justify modifications to the processes they have used and to the outcomes realized.

c. Effective Instructional Strategies

Three major breakthroughs in instructional theory

Pratt (1987:612) identifies three major breakthroughs in instructional theory. These findings should guide both curriculum design for and implementation of the practical arts:

- Bloom's (1968) concept of mastery learning based on the provision of cognitive prerequisites, high but realistic expectations, and rapid correction of error.

- Research on school and classroom effectiveness which emphasized the benefits of a positive, orderly atmosphere, a clear academic focus, high expectations, collegial planning of curriculum, active student involvement in learning, high student time-on-task, and appropriate difficulty of instruction (MacKenzie, 1983).

- Research based on meta-analysis which integrated the findings from many studies. Walberg (1984), for example, demonstrated that factors such as socio-economic status, peer group influence, tracking, and class size have relatively little effect on achievement. Effects more than twice as great could be achieved by such practices as graded homework, peer tutoring, cooperative learning, and reinforcement.

Extending students "sets of know-how"

A major contribution that the practical arts make to students' development lies in providing experiences in a number of discrete areas. These are described by Gardner (1983) as procedures for doing things or a set of know-how: linguistic, logical-mathematical, spatial, bodily kinesthetic, personal and musical. New curriculum in each area of the practical arts might incorporate each of these multiple ways of knowing and doing. This would develop a sense of the interconnectedness of life in school and in the community and within various courses of study. Business education, for example, already encompasses all "sets of know-how" with the possible exception (but ready inclusion) of music. The advantage of understanding these discrete sets only comes to the students when instruction makes it explicit.

d. Exploring Alternatives In, Around, and Beyond the School

Value of community partnerships and on-site experiences

Increasingly, schooling is not confined to a building or a place but occurs when teachers and students gather for the purposes of learning. Similarly, the development and implementation of a new curriculum for the practical arts need not be limited by habits of the past or a given location. Partnerships with community agencies, business and industry offer ample opportunities for students to access modern and changing technology, expertise, role models, mentors, specialized libraries, hands-on activities, meaningful decision-making situations, and continuity of experience and commitment. As valuable as these experiences are in promoting students' interests and special aptitudes, they are equally valuable in providing a range of exploration that might identify areas incompatible with the students' abilities and aspirations.

e. Changing to Instructional Technology

Major shift in instruction anticipated to reflect technological society

In what they term an anticipated "clash of cultures", Aquila and Parish (1989) warn that changing public schools to adapt to a technological society will not be easy. The shift they propose is from teaching as an art which deals directly with individuals to instructional technology or teaching as a craft that alters this relationship through different programs, products, processes, and techniques. Each approach uses knowledge in radically different ways and requires a reassessment of our world view of teaching and learning. Quoting Lortie (1985:78-79), they emphasize that, when teachers screen knowledge for useability, the task is based more on artistic rather than scientific conceptions of work.

It is not that the current knowledge of schools, learning, and teaching cannot result in improvements if implemented. Rather, Aquila and Parrish believe that there is little chance for improvement because teachers have not responded meaningfully to technical change or to technical knowledge utilization approaches (p. 54).

Schools must reflect changing cultures to survive

> *Aquila and Parish see no alternative for educators." As our society becomes more and more technical, it will demand that, as a matter of survival, the schools match these changing cultures." They describe three possible scenarios: a drastically altered system of schools, such as voucher systems, private organizations or religious groups providing schooling, and eventual*

dismantling of public schools, except for poor urban children; transition of teaching to a science (technology) rather than an art and dissemination system based on a craft culture; and unchanged schools with more and more families sending their children to private schools that teach the values they prefer (p.55).

Future depends on decisions made now; education will reflect those decisions

The authors conclude that "only when those who will rule our future technological society decide how they want schools to teach their children (and those they want to be taught), will we be able to design and change the schools of the future (p. 55)."

Importance of maintaining "mind over machine"

While not denying the impact of technology on education, Dreyfus and Dreyfus (1986:132-133) maintain "mind over machine" on the premise that there is much more to teaching and learning than knowing domain-specific facts and explicit rules. They warn that if children are taught as though their minds functioned like computers, they may be forced into thinking patterns that are unnatural and unsatisfactory for effective human living. By comparing magic, magicians, and machines, Baron (1987) provides an insightful interpretation of "instrumental magic" that creates the allusion, and no more, that machines think in language. It is the human being who thinks, and educators have a particular responsibility to honour the mind over the machine, humanity over technology.

Importance of wise curricular decisions

More predominate in the literature than any other theme, technology challenges the very purpose of education and alerts educators to the influences technological changes can have on the ideology, the curriculum design, and the methodology of what we now call the "practical arts".

Conclusion

Practical arts, a needed and important parallel to academic learning, drawing form and reinforcing it

The role of practical arts, regardless of any change in general lifestyle or economy, remains. The courses, whatever their form, offer an important and needed parallel to academic, symbolic learning. It can be argued that all students could benefit from learning

- how things work, can be changed, and improved
- how one participates in the making, creating, and critiquing
- how, more can be done in the company and with the cooperation of others than alone
- how to use tools, technology, creativity and common sense to satisfy personal interests and needs, serve others, and build a sound and stable economic base for oneself and family

Practical arts as co-partner in student learning

Those involved in designing and implementing a "new" version of the practical arts face the challenge of anticipating the future, bridging the transition from current courses of study to the new, and setting forth clear and purposeful guidelines. Curriculum planners, resource developers, administrators, teachers, teacher educators, school systems, and students all have a role to play in determining what the "new" shall be. In the past, practical arts have provided students with opportunities to explore different areas of learning. The future demands even more and, to accomplish this, practical arts must be recognized as a co-partner in the attainment of the goals of schooling and lifelong learning. As Pratt (1987:617) stresses:

> *The most significant social role that the majority of our current students will play in the next century will be as parents.*

Time to meet the challenges

The influence these students will have on their children and on society in general, will be based on the knowledge, skills and attitudes they acquire during their junior and senior high school years. Determining what knowledge, skills and attitudes will serve them best is the challenge facing curriculum designers now. Taking Pratt's advice as a motto to guide the development and implementation of practical arts:

> *If we want to achieve something in education, we have to target it exactly, plan it systematically, and teach it wholeheartedly.*

PART 2

SYNOPSIS OF TRENDS, IMPACTS AND CHALLENGES

Part two outlines significant societal and education related trends, their impact on practical arts, and challenge to educators.

The trends were identified during a search of the literature and from discussions with school system administrators, teachers and other stakeholders.

The trends are not listed in any particular order and are given in point form.

A. SOCIETAL TRENDS

TREND	IMPACT	CHALLENGE
decreasing birthrate moderate immigration rates	fewer children in school (smaller proportion of rate-payers with children in school)	maintaining support for education, particularly of high cost programs
	fewer potential employers	demand for adequately trained work force
longer, healthier, life expectancy	aging populace, increased health care costs (per capita cost to support aging population; higher than required to support younger population)	competition for resources presently allocated to education of youth
	increased demand for service in areas such as leisure, hospitality and health care	demand for training in emerging career opportunities (service area)
earlier retirement in some areas, later retirement in others - both impacted by the "greying" of the WWII "baby boomers" and decline in birthrates	fewer in work force to produce goods and services, which will be in demand	increasing demands on the individual's ability to be productive through innovation, technology
	many early retirees need/want to supplement income	increasing competition for jobs
emphasis on healthier, more active life styles	increased demand among all age groups for wider range in quality leisure activities	prepare for new career opportunities (e.g., tourism, hospitality, child care, seniors care, nurturing)

A. SOCIETAL TRENDS (continued)

TREND	IMPACT	CHALLENGE
Alberta as international trader	need for work force that is flexible, prepared to retrain, assume risks industry need for improved access to skilled work force	access to training, in basic, transferable skills, that builds confidence in ability to apply such skills in different situations
Alberta economical reliance on international forces that set market prices (e.g., oil/gas, lumber, meat)	pressure to diversify the economic base to reduce dependency and to broaden markets	build skills, knowledge of entrepreneurship as a career option encourage an educational environment that supports innovation and initiative
continued scarcity of resources for government initiatives	lack of resources	need to use available resources in as efficient a manner as possible
ongoing technological impact on the workplace what is "high tech" quickly becomes "basic"	varying impacts on basic skill requirements for employment, work environment, and management practices	define degree to which technology can be integrated within schools improve transitions between elementary secondary and post-secondary programs
varying impact of technology on sectors of the economy	change in nature of most occupations: comparatively high impact on primary industries, low impact on service industries changes in occupational opportunities	reinforce skill in career planning cycle respond to career opportunities within the service sector need to modify some practical arts courses to ensure relevancy to new occupations

A. SOCIETAL TRENDS (continued)

TREND	IMPACT	CHALLENGE
demand for entry-level employees in service industry	many jobs at minimum wage levels, limited opportunity for advancement	link skill development to alternative career options (career ladders)
emphasis on "excellence"	increased standards and higher expectations in workplace, frequently translated in school environment as "rigour"	define "excellence" or "rigour" from perspective of practical arts highlight concepts that demand complex, abstract thinking processes clearly communicate standards for student achievement
increasing proportion of ethnic populations	increase demand for ESL programs schools challenged to meet needs of students and deal with related problems	provide programs and support systems that eliminate barriers to career opportunities due to stereotyping (gender, race, class) assist teachers to deal with issues related to multicultural student populations
emphasis on "accountability"	review of standards for student evaluation parental/societal demand for effective use of resources allocated to education	encourage more consistency among practical arts teachers in defining expectations for student achievement need to "market education" need to respond to local needs by involving community in program planning, decisions relating to resource allocation

A. SOCIETAL TRENDS (continued)

TREND	IMPACT	CHALLENGE
more students identified as potentially disconnected or alienated ("at risk")	more drop-outs when: • job opportunities are good • stresses in school become too high difficult for many students to achieve positive, long-term relationships	define appropriate levels and identify effective strategies for support systems/monitoring encourage appropriate selection of courses/programs improve teachers' knowledge of school/ community support systems that are presently available
	increase in abuse of substances, teenage pregnancy, stress on family	provide programs that are relevant to "at risk" students
lack of worldwide stability: politically, economically, environmentally	more competition, less stability in job market role as citizen more complex	expand opportunities for students to build confidence, sense of empowerment provide opportunities to build cooperative work habits
changing role of men and women	more women employed in work force (divorce rate, career expectations, changing lifestyle expectations) changes in traditional stereotypes of male/female roles	support elimination of career barriers (e.g., child care, access to retraining programs, awareness of career options)

A. SOCIETAL TRENDS (continued)

TREND	IMPACT	CHALLENGE
change in role nature of family unit	many children not taught basic "home skills" as in traditional family units	define role of education in addressing these issues determine which "basic practical skills" should be delivered through practical arts, and identify strategies to increase access to such training for all students
increasing economic gap between rich and poor	children from poorer family units may be disadvantaged if programs have supplementary costs (discrimination)	provide programs that do not require unreasonable financial demands on students or parents
continued migration from rural to urban centres	fewer students in schools in rural areas	provide greater equity of opportunity to a broad general education for students in schools of all sizes and locations (greater access to practical arts courses in small schools)
high unemployment, particularly for 15- to 24-year-olds	significant percentage of students return to school or try to enter post-secondary for further study	expand support for entry into workplace or post-secondary programs increase awareness of career, occupational, entrepreneurial and job opportunities and expectations improve links with business/industry and post-secondary institutions encourage empowerment through positive self-image, motivation

A. SOCIETAL TRENDS (continued)

TREND	IMPACT	CHALLENGE
increase in community business willingness to become partners in educating youth	greater access to community industry resources, expertise, cross-fertilization of ideas, approaches	clarify role of school/community in delivery of practical arts; e.g., • build general knowledge of world of work • prepare students for employment skills • enhance developmental phases toward work maturity, responsibility
		need for related administrative structures, guidelines necessary to facilitate effective and appropriate use of community industry resources
projections that individuals will undergo frequent occupational/ career changes through lifetime	increased difficulty in making choices for courses, school programs - trend to "keep options open"	define practical arts programs that help students build as broad a range of skills as possible; e.g. define transferable skills by industries expanding occupational alternatives for students
	increase in demand for continuing education programs	continue to cooperate in continuing education through shared facilities, resources, curricula, teacher expertise, etc.
	shared responsibility of secondary/ post-secondary/industry in training for careers, occupations,	define strategies that facilitate closer cooperation and smoother transition within institutions (e.g., cooperative curriculum development, resource facility use)

B. EDUCATION - RELATED TRENDS

TREND	IMPACT	CHALLENGE
greater access to technology within secondary schools, coupled with increasing ownership of technological tools in the home	increased technological literacy among students teachers ability to respond more effectively to individual learning needs improved opportunities to provide multiple modes of instruction greater variation of skills/abilities of students entering high school (e.g., junior high practical arts courses, related elementary programs)	establish appropriate uses of technology and learning resources to improve quality of and access to learning in practical arts ensure teachers are comfortable/skilled in use of technology acquire needed resources ensure smooth articulation of technological instruction between and among grades propose strategies to allow practical arts teachers to design programs based on level of student competency (e.g., challenge exams, waiver of prerequisites, provision for greater entry and exit points)
greater access to technology within the community	higher demand for school resources higher expectations by community regarding skills and competencies of educators	coordinate resource demands support teacher inservice though community, business and industry partnerships
parents and schools increasing demands on students to achieve and perform, particularly as pace of life increases, constantly changes	increase in stress levels sense of inadequacy (first generation less well educated than parents) sense of smallness, powerlessness due to information overload	build knowledge/confidence in career options/alternatives encourage students to view their personal life skills as foundations upon which additional skill extensions can be built

B. EDUCATION - RELATED TRENDS (continued)

TREND	IMPACT	CHALLENGE
increased effort to ensure right of student parent community to have specific needs addressed	greater provision of individualized programs potential for students who, working in isolated learning environment will miss important socialization and interpersonal interactions increase in use of locally developed course option	assess degree to which individualization is feasible develop suitable instructional materials for students and teachers establish guidelines for when programs should be provincially mandated or locally developed
recent changes in educational systems: e.g., process versus content orientation; thrust toward critical thinking through problem solving	parents/business/industry lack knowledge of present secondary school systems	improve communication to stakeholder regarding goals/objectives of practical arts programs
more students attending school independent of family unit	increased demand on part of students for recognition and sensitivity of their independent status	provide related support systems
contradictory trends/perceptions of skills needed for future: generalists → specialists specialists → generalists	on-the-job training required for specific skills school role to develop transferable knowledge/skill base which can be applied across a broad context	determine which basic skills are necessary for daily living and specific occupations, and what should be taught in secondary schools define how basic academic skills (mathematics, science, language arts) can be reinforced within practical arts and extend practical skills for wider applicability provide information on the linkages between courses and occupations

B. EDUCATION - RELATED TRENDS (continued)

TREND	IMPACT	CHALLENGE
more students attempting advanced diploma	schools face increased timetable constraints due to the need to offer advanced diploma programs	develop strategies to increase opportunity for students of all ability levels to have access to practical arts courses
	limited access of advanced diploma students to practical arts courses	help students make decisions appropriate to their interests, abilities and needs
fewer practical arts classes scheduled	reduced access to programs	indepth research into reasons for reductions in class scheduling
	reduced lab utilization/lab closure	consider strategies to expand access to programs (e.g., advancement by competency, credit offerings to 3, 4, or 5 etc.)
	redesignation of practical arts teaching staff to subjects outside areas of expertise/experience	
	change of function of practical arts labs not fully utilized	
increased requirements for high school diploma	less time available for complementary programs	define innovative curricular and delivery alternatives for practical arts
		support timetabling and student decision making to maximize effective program decisions (optimum use of credits)
employer dissatisfaction with graduates' attitudes, abilities	business/industry standards for employability may not reflect knowledge/skills now developed in specific courses/programs	increase business/industry's understanding about learning outcomes expected in practical arts courses - develop more open channels of communication
	increased pressure on schools to train in attitudes and interpersonal relations	define "employability" more clearly within industry and education

B. EDUCATION - ..LATED TRENDS (continued)

TREND	IMPACT	CHALLENGE
extensive curriculum revision underway in secondary schools, particularly in core courses	opportunity for practical arts courses and core courses to reinforce basic skills	establish sequences and strategies to reinforce basic skills and resource use
	opportunities to improve transitions between programs and grade levels	eliminate inappropriate overlap and duplication
	pressure on schools/systems/teachers to deal with extensive change (particularly severe on small schools)	develop strategies to assist in transitions into new practical arts programs
desire to structure courses to better meet individual needs of students	some practical arts courses will need to be restructured: e.g., define required (70%) /elective (30%) component sfor complementary courses	address issue during curriculum design phase
extensive research into learning and thinking	better correlation between research and student expectations/learning outcomes, and the processes to achieve these	apply related research to build skills, knowledge and attitudes within practical arts
	educators more knowledgeable about how to develop higher order thinking skills	encourage strategies that teach more "methods and procedure" than just "discovery and testing"
	more respect for different learning modalities	reinforce opportunities to combine variety of learning modalities to achieve required goal (learning outcome).
aging of practical arts instructors	limited recent industry/ business experience	need for strategies to ensure new trends and procedures are reflected within classroom

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